



INSTRUMENTATION CABLES

Multipair Individual and Overall Screen

NOT ARMoured

PE/IS/OS/PVC
XLPE/IS/OS/LSZH

ARMoured

PE/IS/OS/PE/SWA/PVC
XLPE/IS/OS/LSZH/SWA/LSZH

APPLICATIONS

Can be used in cable tray or conduit to connect electrical instrumentation and communication circuits in industrial process controls, refineries, oil and gas plants.

OPERATING TEMPERATURE

-20 °C to +80 °C (for general use); -40 °C to +90 °C (on request).

MINIMUM BENDING RADIUS

Not armoured type

12 times the outer diameter (for conductors class 1 and class 2);
10 times the outer diameter (for conductors class 5).

Armoured type

15 times the outer diameter.

CABLE CONSTRUCTION

Conductors Plain annealed electrolytic copper wire according to EN 60228 class 1(U) solid, class 2 (R) stranded, class 5 (F) flexible.

Insulation PVC, PE, XLPE or LSZH thermoplastic material.

Twisting The insulated cores shall be twisted in pairs for a good reduction of the electromagnetic noise.

Individual screen Aluminium/polyester tape, coverage >100%, aluminium in contact with tinned copper drain wire.

Cabling The screened pairs are cabled with suitable non hygroscopic fillers (when necessary) and wrapped with polyester tape if required.

Overall screen Aluminium/polyester tape, coverage >100%, aluminium in contact with tinned copper drain wire.

Armoured

Inner sheath: PE, PVC or LSZH thermoplastic material.

Armour: Single layer of galvanized steel wires (SWA).

Outer sheath PVC or LSZH thermoplastic material.

APPLICABLE STANDARDS

Basic design 50228-7 or PAS 5308

Flame retardant IEC 60332-1

Fire retardant (cat. C or A according to requirements) IEC 60332-3

Halogen free properties (only for LSZH cables) IEC 60754-1

Low smoke emission (only for LSZH cables) IEC 61034-2

EN 50288-7 (500 V)

Cross section (mm ²)	UNARMoured		ARMoured		
	Outer diameter (mm)	Weight (kg/km)	Diameter under armour (mm)	Outer diameter (mm)	Weight (kg/km)
1 mm ² stranded	R-XLPE/IS/OS/LSZH		R-XLPE/IS/OS/LSZH/SWA/LSZH		
2x2x1	11.5	150	11.5	16.5	460
5x2x1	14.9	275	14.9	20.1	675
10x2x1	20.6	480	20.6	27.6	1335
12x2x1	21.6	555	21.6	28.6	1450
1.5 mm ² stranded	R-XLPE/IS/OS/LSZH		R-XLPE/IS/OS/LSZH/SWA/LSZH		
2x2x1.5	12.6	180	12.6	17.6	525
4x2x1.5	15.0	275	15.0	20.9	785
5x2x1.5	16.5	350	16.5	22.4	905
6x2x1.5	18.0	425	18.0	24.1	1020
8x2x1.5	19.3	495	19.3	25.4	1150
10x2x1.5	22.9	625	22.9	29.2	1400
12x2x1.5	24.0	720	24.0	30.3	1530
20x2x1.5	28.1	1130	28.1	35.5	2300
24x2x1.5	32.2	1365	32.2	39.8	2705
2.5 mm ² stranded	R-XLPE/IS/OS/LSZH		R-XLPE/IS/OS/LSZH/SWA/LSZH		
2x2x2.5	15.0	265	15.0	20.2	665
4x2x2.5	17.9	390	17.9	23.3	870
5x2x2.5	19.6	490	19.6	26.4	1290
6x2x2.5	21.5	595	21.5	28.5	1480
8x2x2.5	23.1	710	23.1	30.1	1660
10x2x2.5	27.5	905	27.5	34.9	2045
12x2x2.5	28.9	1050	28.9	36.3	2245
20x2x2.5	33.8	1645	33.8	41.4	3045

approximate values

ELECTRICAL CHARACTERISTICS

Cross section (mm ²)	1	1,5	2,5
Capacitance (pF/m)	≤150	≤150	≤150
L/R (µH/Ohm)	≤25	≤40	≤60

PAS 5308 (300/500 V)

Cross section (mm ²)	UNARMoured		ARMoured		
	Outer diameter (mm)	Weight (kg/km)	Diameter under armour (mm)	Outer diameter (mm)	Weight (kg/km)
0,5 mm ² solid	U-PE/IS/OS/PVC		U-PE/IS/OS/PE/SWA/PVC		
2x2x0,5	10,3	150	10,3	14,9	380
5x2x0,5	13,5	250	13,5	19,0	640
10x2x0,5	18,3	380	18,3	24,2	890
15x2x0,5	21,1	490	21,1	27,7	1350
20x2x0,5	23,5	640	23,5	30,3	1470
30x2x0,5	27,9	970	27,9	34,9	1870
50x2x0,5	36,1	1470	36,1	44,5	3000
0,5 mm ² flexible	F-PE/IS/OS/PVC		F-PE/IS/OS/PE/SWA/PVC		
2x2x0,5	12,0	100	12,0	16,8	460
5x2x0,5	15,2	250	15,2	20,9	760
10x2x0,5	21,1	480	21,1	27,9	1300
15x2x0,5	24,5	570	24,5	31,3	1440
20x2x0,5	27,3	780	27,3	31,3	1870
30x2x0,5	32,3	1020	32,3	34,3	2400
50x2x0,5	41,7	1680	41,7	51,5	3930
1 mm ² solid	U-PE/IS/OS/PVC		U-PE/IS/OS/PE/SWA/PVC		
2x2x1	12,8	200	12,8	17,6	515
5x2x1	16,2	290	16,2	21,9	950
10x2x1	22,6	580	22,6	29,4	1330
15x2x1	26,2	780	26,2	33,2	1680
20x2x1	29,8	1010	29,8	37,8	2540
30x2x1	35,4	1430	35,4	43,8	2900
50x2x1	44,9	2360	44,9	54,9	4800
1,5 mm ² stranded	R-PE/IS/OS/PVC		R-PE/IS/OS/PE/SWA/PVC		
2x2x1,5	14,7	250	14,7	20,4	730
5x2x1,5	18,8	460	18,8	25,4	1180
10x2x1,5	26,5	760	26,5	33,5	1820
15x2x1,5	30,8	1020	30,8	38,8	2350
20x2x1,5	34,4	1350	34,4	42,6	3030
30x2x1,5	41,0	1900	41,0	50,8	4050
50x2x1,5	52,2	3060	52,2	62,6	5960

approximate values

ELECTRICAL CHARACTERISTICS

Cross section (mm ²)	0,5	1	1,5
Capacitance (pF/m)	≤115	≤115	≤120
L/R (µH/Ohm)	≤25	≤25	≤40